

My Alpaca now needs a new pen.
I still have only 60m of snow
fence but I'm going to use the
barn as one of the sides of my
pen. What are the optimal
dimensions of my 3 sided Alpaca
pen?

3sided

Dec 6-7:38 AM

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3 sided shape-Max Area

length is twice the width

4 sided shape. All sides equal

$$\therefore 90m = \frac{90}{2} = 45 \quad (45 \times 22.5)$$

$$\therefore 90 \div 4 = (22.5 \times 22.5)$$

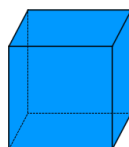
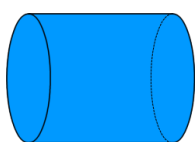
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Minimum Surface Area

Cylinder p. 462
Rectangular Prism p. 470

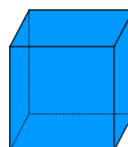
Students will identify the minimum surface Area formulas used for optimal cylinders and cubes.

Identify the relationship for optimal cylinders and cubes.
Recall Volume



May 28-10:55 AM

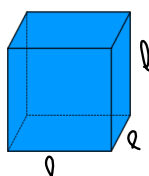
Create Formula Optimal Rectangular
Prism
Use Eqao sheet for a rectangular prism



SA =

May 28-11:56 AM

Create Formula Optimal Rectangular
Prism
Use Eqao sheet for a rectangular
prism

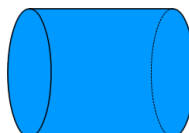


$$SA = 2(lw + lh + wh) \quad V = l^3$$

$$= 6(l^2)$$

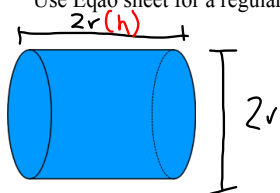
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Create Formula Optimal Cylinder
Use Eqao sheet for a regular cylinder



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Create Formula Optimal Cylinder
Use Eqao sheet for a regular cylinder



$$SA = 2\pi r^2 + 2\pi r h$$

$$SA = 2\pi r^2 + 2\pi r(2r)$$

$$SA = 2\pi r^2 + 4\pi r^2$$

$$SA = 6\pi r^2$$

$$V = \pi r^2 \times h$$

$$V = 2\pi r^3$$

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Seatwork

p. 463-466

q. 11, 12, 14 & 17

p. 473-474

q. 9, 11, 13 & 17

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p463 q12 a) 1884 cm^2

$$SA = 6\pi r^2$$

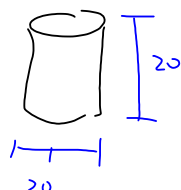
$$\frac{1884}{6\pi} = \frac{6\pi r^2}{6\pi}$$

$$\frac{1884}{6(3.14)} = r^2$$

$$\frac{1884}{18.85} = r^2$$

$$\sqrt{100} = \sqrt{r^2}$$

$$10 = r$$



May 28-1:33 PM

p473

q11

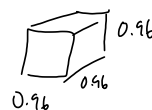
$5.5 \text{ m}^2 \rightarrow \text{cube}$
Optimal Surface Area

$$SA = 6l^2$$

$$5.5 = 6l^2$$

$$\frac{5.5}{6} = \frac{6l^2}{6}$$

$$0.92 = l^2$$



$0.96 = l$
Optimal Volume

$$V = l^3$$

$$V = (0.96)^3$$

$$V = 0.88 \text{ m}^3$$

May 28-1:39 PM

875 cm^3 of coffee into
an optimal cylinder. How much
aluminum is used in the can?

$$V = 875$$

$$\text{optimal cylinder} \Rightarrow 2\pi r^3$$

$$V = 2\pi r^3$$

$$\frac{875}{2\pi} = \frac{2\pi r^3}{2\pi}$$

$$\sqrt[3]{139.33} = \sqrt[3]{r^3}$$

$$5.2 = r$$

Aluminum? \Rightarrow SA

$$SA = 6\pi r^2$$

$$= 6\pi (5.2)^2$$

$$= 6\pi (27.04)$$

$$= 509.43 \text{ cm}^2$$

Dec 6-8:58 AM

Dec 6-9:09 AM